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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/701,028 | 11/04/2003 | Tim Bianchi | N2215-63142 | 6162 |
| 32009 | 7590 | 02/08/2007 | EXAMINER | |
| BRADLEY ARANT ROSE & WHITE LLP | | | DANG, HUNG Q | |
| 200 CLINTON AVE. WEST | | | ART UNIT | PAPER NUMBER |
| SUITE 900 | | | 2612 | |
| HUNTSVILLE, AL 35801 | | | | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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| 3 MONTHS | 02/08/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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|------------------------------|--------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/701,028 | BIANCHI ET AL. | |
| | Examiner Hung Q. Dang | Art Unit 2612 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 August 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-19 and 21-40 is/are rejected.
- 7) Claim(s) 20 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 November 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to applicant's remarks dated 8/21/2006.

The amended claims 18-20, 25 and 34 have been entered.

Response to Arguments

2. Applicant's arguments regarding claims 1-22 have been fully considered but they are not persuasive. Applicant's main argument is that the communication protocol disclosed by Gray et al. does not include the use of an initialization signal, an interval identification signal and a clock signal, as described in the specification of this application. Examiner disagrees with applicant. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features (such as how the initialization, interval identification signal and clock signal work) upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim 1 merely claims the communication protocol comprises "an initialization signal, an interval identification signal, and a clock signal". Examiner asserts that Gray et al. does teach an initialization signal, an interval identification signal, and a clock signal. See column 10, lines 2-28, 58-68 and column 11, lines 40-46, the external computer can be used to send data to initialize (**initialization signal**) desired parameters the electronic data recorder (MIU). The external computer can also be used

to transmit a set callback time command code followed by a data string indicating the elapsed time or callback time interval to be set in the MIU. Such callback time command can be considered as **an interval identification signal**; and figure 2a shows a clock E.T. counter to increment clock pulse is considered as a **clock signal**.

Note: A signal is: anything that serves to indicate, warn, direct, command, or the like, as a light, a gesture, an act. *Electronics*. an electrical quantity or effect, as current, voltage, or electromagnetic waves, that can be varied in such a way as to convey information.

3. Applicant's arguments with respect to claims 4-6 (involving the common ownership of this application and the Hamilton reference) have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's arguments regarding claims 23-40 have been fully considered but they are not persuasive because claims 23-40 do not even claim "an initialization signal, an interval identification signal, and a clock signal".

5. Applicant's arguments regarding claims 8-12 have been fully considered but they are not persuasive. Examiner hereby provides the evidence regarding the claimed limitations of claims 8-12:

Regarding claim 8, Brennan et al. teaches a reader/programmer for a utility meter communication system, which employs a initialization signal (programming signal) that lasts between 25 and 100 milliseconds in duration (column 13, lines 51-56).

Regarding claim 9, Brennan et al. teaches a reader/programmer for a utility meter communication system, which employs a clock signal operating at a frequency of 1200 Hz (column 23, lines 25-33).

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Regarding claim 10, Brennan et al. teaches a reader/programmer for a utility meter communication system, which employs a clock signal operating at a frequency of 19.2 KHz (column 13, lines 30-37).

Regarding claims 11 and 12, Johnson et al. U.S. Patent 6,653,945 teaches a meter reading system, wherein the meter reader is activated to read meter consumption at **every 15 minute interval** (paragraph bridging columns 7-8); which implies the existence of an interval identification signal served to identify each 15 minute interval.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Gray et al. U.S. Patent 5,434,911.

Regarding claims 1 and 7, Gray et al. teaches an apparatus for monitoring a meter, comprising:

A meter (Figure 1, unit 8) that monitor usage of a distribution system;

An electronic data recorder (Figure 1, unit 6) that processes data from the meter;

An external unit (Figure 1, unit 4) that controls the processing of data in the electronic data recorder with a communication protocol; and wherein the communication

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protocol comprises an initialization signal, an interval identification signal (last paragraph of column 10 "call-in time interval"), and a clock signal (Figure 2a). See column 10, lines 2-28, 58-68 and column 11, lines 40-46; and explanation in the response to argument above.

Regarding claim 2, the meter disclosed by Gray et al. is also a utility meter (Figure 1, unit 8; and abstract).

Regarding claim 3, Gray et al. also teaches a water meter (column 1, lines 40-45).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Dlugos et al. U.S. Patent 6,191,687.

Regarding claims 4-6, Gray et al. teaches the apparatus of claim 3, **except** wherein the water meter is self-powered. One skilled in the art would recognize that utility meters have been conventionally designed as self-powered, as evidenced by Dlugos et al. (column 1 lines 35-42 and paragraph bridging columns 1-2; Wiegand wire is self-powered generated by the rotation of at least one magnet coupled to a valve of a

meter, wherein the valves rotates upon the occurrence of a flow through the meter). Therefore, by conventionality, it would have been obvious to one skilled in the art at the time the invention was made to equip the meter disclosed by Gray et al. as self-powered, as evidenced by Dlugos et al.

10. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911.

Regarding claim 8, even though Gray et al. does not specifically disclose an initialization signal is between 25 and 100 ms in duration, however, one skilled in the art would recognize that such duration could be easily achieved by one skilled practitioner through routine experimentations to achieve desired result. Therefore, it would have been obvious to one skilled in the art to provide such duration to the initialization signal disclosed by Gray et al, as desired (see evidence in the “response to argument” above).

Claims 9-12 are rejected for the same reasons as the rejection claim 8 (see evidence in the “response to argument” above).

11. Claims 13-16, 23, 28-32, 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Furmidge et al. U.S. Patent 6,952,970.

Regarding claims 13-16, Gray et al. teaches the apparatus as claimed in claim 1, **except** wherein the electronic data recorder processes data from the meter to detect a leak in the distribution system.

Furmidge et al., in the same field of endeavor, teaches utility meter system, which includes detecting a continuous leak in a distribution system (column 5, lines 31-41; intermittent leak occurs when the LEAK-TIME does not exceed MAX-LEAK-TIME).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide A continuous/intermittent leak detection in the distribution system disclosed by Gray et al., as evidenced by Furmidge et al., in order to detect leak in a distribution system.

Claim 23 is rejected for the same reasons as the rejections of claims 1 and 13.

Claims 28, 31, 32 and 40 are rejected for the same reasons as the rejections of claims 1 and 13. The predefined condition(s) in this case is the leak detection.

Regarding claims 29-30, since the specification of this application does not specifically disclose what the claimed **levels of magnitude** of the predefined conditions are; examiner interprets the claimed "levels of magnitude" are the amount of water usage, water flow rate, leaking period etc. Examiner takes official notice that the levels of magnitude of such predefined conditions have been conventionally detected and monitored in water utility distribution system. Therefore, by conventionality, it would have been obvious to one skilled in the art at the time the invention was made to provide monitoring levels of magnitude of such conditions of the method disclosed by Gray et al. in view of Furmidge et al.

Regarding claim 37, the meter disclosed by Gray et al. is can also be a water meter (column 1, lines 35-47).

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12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Jepson et al. U.S. Patent 4,938,053.

Regarding claim 17, Gray et al. teaches the apparatus of claim 17, **except** determining the flow rate in the distribution system.

One skilled in the art would recognize that conventional water/fluid metering systems have been equipped with the capability for measuring flow rate, as evidenced by Jepson et al.

Jepson et al., in the same field of endeavor, teaches metering system, which includes measuring the fluid flow rate of said system (column 4, lines 19-24).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide measuring the flow rate of the system disclosed by Gray et al., as evidenced by Jepson et al., in order to measure the flow rate of the liquid/water in said system.

13. Claims 24 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Furmidge et al. U.S. Patent 6,952,970 and in further view of Jepson et al. U.S. Patent 4,938,053.

Regarding claim 24, Gray et al. in view of Furmidge et al. teaches the apparatus of claim 24, **except** determining the flow rate in the distribution system.

One skilled in the art would recognize that conventional water/fluid metering systems have been equipped with the capability for measuring flow rate, as evidenced by Jepson et al.

Jepson et al., in the same field of endeavor, teaches metering system, which includes measuring the fluid flow rate of said system (column 4, lines 19-24).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide measuring the flow rate of the system disclosed by Gray et al. in view of Furmidge et al., as evidenced by Jepson et al., in order to measure the flow rate of the liquid/water in said system.

Claim 33 is rejected for the same reasons as the rejection of claim 24.

14. Claims 25-27 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Furmidge et al. U.S. Patent 6,952,970 and in further view of Holowick U.S. Patent 6,755,148.

Regarding claim 27, Gray et al. in view of Furmidge et al. teaches an apparatus of claim 27, except detecting backflow in said distribution system.

Holowick, in the same field of endeavor, teaches a system for monitoring a utility meter, which implicitly suggests detecting backflow of water in said distribution system (column 1 lines 43-50 and column 2, lines 20-27), in order to achieve accurate water consumption readings.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide water backflow detection to the distribution system disclosed by Gray et al. in view of Furmidge et al., as evidenced by Holowick, in order to achieve accurate water consumption readings.

Claims 25 and 34 are rejected for the same reasons as the rejection of claim 27 (the direction of flow in this case is backflow).

Regarding claim 26, the meter disclosed by Holowick can also detect an absence of a flow in a distribution system (column 3 lines 1-30 shows that the "sweep-hand 18" can be used for tracking the quantity of water consumption as water flow forward or backward through the meter; therefore, if no water is being consumed or no water flows in either direction through the meter, then the "sweep-hand 18" would not rotate, which would mean that an absence of a flow can be detected).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide detecting an absence of a flow in the water distribution system disclosed by Gray et al. in view of Furnidge et al., as evidenced by Holowick, so that an absence of a flow can be detected and monitored.

Claim 35 is rejected for the same reasons as the rejection of claim 26.

Claim 36 is rejected for the same reasons as the rejection of claim 27.

15. Claims 18, 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Holowick U.S. Patent 6,755,148.

Regarding claims 21 and 22, Gray et al. teaches an apparatus of claim 21, except detecting backflow in said distribution system.

Holowick, in the same field of endeavor, teaches a system for monitoring a utility meter, which suggests detecting backflow of water in said distribution system (column 1

lines 43-50 and column 2, lines 20-27; and column 3 lines 1-30; column 4 lines 10-12), in order to achieve accurate water consumption readings.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide water backflow detection to the distribution system disclosed by Gray et al., as evidenced by Holowick, in order to achieve accurate water consumption readings.

Claim 18 is rejected for the same reasons as the rejection of claim 21 (the direction of flow in this case is backflow).

Regarding claim 19, the meter disclosed by Holowick can also detect an absence of a flow in a distribution system (column 3 lines 1-30 shows that the "sweep-hand 18" can be used for tracking the quantity of water consumption as water flow forward or backward though the meter; therefore, if no water is being consumed or no water flows in either direction through the meter, then the "sweep-hand 18" would not rotate, which would mean that an absence of a flow can be detected). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide detecting an absence of a flow in the water distribution system disclosed by Gray et al., as evidenced by Holowick, so that an absence of a flow can be detected and monitored.

16. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Furmidge et al. U.S. Patent 6,952,970 and in further view of Dlugos et al. U.S. Patent 6,191,687.

Regarding claims 38 and 39, Gray et al. in view of Furmidge et al. teaches the method of claim 28, except wherein the water meter is self-powered. One skilled in the art would recognize that utility meters have been conventionally designed as self-powered, as evidenced by Dlugos et al. (column 1 lines 35-42 and paragraph bridging columns 1-2; Wiegand wire is self-powered generated by the rotation of at least one magnet coupled to a valve of a meter, wherein the valves rotates upon the occurrence of a flow through the meter). Therefore, by conventionality, it would have been obvious to one skilled in the art at the time the invention was made to equip the meter disclosed by Gray et al. in view of Furmidge et al. as self-powered, as evidenced by Dlugos et al.

Allowable Subject Matter

17. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 20, the prior arts of record fail to teach or disclose the apparatus of claim 19, wherein the electronic data recorder further processes data from the meter to determine how long the flow has been absent.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571) 272-3069. The examiner can normally be reached on 9:30AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hung Dang
2/1/2007
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